

Abstract of the Disclosure**METHOD AND SYSTEM FOR BALANCING THRUST DEMANDS**

In the control of spacecraft, thrusters must generate a commanded force or torque that is computed from the control algorithms in order to maintain a certain attitude or orbit. In general, there is an infinite number of solutions as to how the thrusters are fired in order to achieve the commanded value. However, additional imposed constraints on the mass flow allow only a small subset of those solutions to be feasible. By way of example, two constraints are considered in this invention: first, the mass flow of each thruster must exceed a minimum value and second, the total mass flow of all thrusters for any generated force/torque must be constant. If only a non-feasible solution is found, known methods turn it into a feasible one by reducing the commanded force/torque until the constraints are met. Reducing the commanded force/torque is, however, a disadvantage because the performance may decrease and even lead to instability of the closed loop system. This invention concerns a simple and time efficient method/system for improving an unfeasible solution in such a way that reducing the commanded force/torque can be minimised or even completely be avoided and, therefore, higher feasible generated forces/torques than those with known methods can be generated.

(Figure 2)